To: CN=Dave Moon/OU=EPR/OU=R8/O=USEPA/C=US@EPA;CN=Gary Russo/OU=DC/O=USEPA/C=US@EPA;CN=Janita Aguirre/OU=DC/O=USEPA/C=US@EPA;jblend@mt.gov;CN=Jim Keating/OU=DC/O=USEPA/C=US@EPA;CN=Karen Hamilton/OU=EPR/OU=R8/O=USEPA/C=US@EPA;CN=Manjali Vlcan/OU=DC/O=USEPA/C=US@EPA;msuplee@mt.gov;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Rosemary Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[]; N=Gary Russo/OU=DC/O=USEPA/C=US@EPA;CN=Janita Aguirre/OU=DC/O=USEPA/C=US@EPA;jblend@mt.gov;CN=Jim Keating/OU=DC/O=USEPA/C=US@EPA;CN=Karen Hamilton/OU=EPR/OU=R8/O=USEPA/C=US@EPA;CN=Manjali Vlcan/OU=DC/O=USEPA/C=US@EPA;msuplee@mt.gov;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Rosemary Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[]; N=Janita Aguirre/OU=DC/O=USEPA/C=US@EPA;jblend@mt.gov;CN=Jim Keating/OU=DC/O=USEPA/C=US@EPA;CN=Karen Hamilton/OU=EPR/OU=R8/O=USEPA/C=US@EPA;CN=Manjali Vlcan/OU=DC/O=USEPA/C=US@EPA;msuplee@mt.gov;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Rosemary Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[]; blend@mt.gov;CN=Jim Keating/OU=DC/O=USEPA/C=US@EPA;CN=Karen Hamilton/OU=EPR/OU=R8/O=USEPA/C=US@EPA;CN=Manjali Vlcan/OU=DC/O=USEPA/C=US@EPA;msuplee@mt.gov;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Rosemary Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[]; N=Jim Keating/OU=DC/O=USEPA/C=US@EPA;CN=Karen Hamilton/OU=EPR/OU=R8/O=USEPA/C=US@EPA;CN=Manjali Vlcan/OU=DC/O=USEPA/C=US@EPA;msuplee@mt.gov;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Rosemary Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[]; N=Karen Hamilton/OU=EPR/OU=R8/O=USEPA/C=US@EPA;CN=Manjali Vlcan/OU=DC/O=USEPA/C=US@EPA;msuplee@mt.gov;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Rosemary Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[]; N=Manjali Vlcan/OU=DC/O=USEPA/C=US@EPA;msuplee@mt.gov;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Rosemary Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve

Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas
Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya
Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[];
suplee@mt.gov;CN=Ron Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Rosemary
Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve
Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas
Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya
Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[]; N=Ron
Steg/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Rosemary
Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve
Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas
Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya
Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[];
N=Rosemary Rowe/OU=MO/OU=R8/O=USEPA/C=US@EPA;CN=Steve
Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas
Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya
Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[]; N=Steve
Potts/OU=DC/O=USEPA/C=US@EPA;CN=Thomas
Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya
Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[];
N=Thomas Gardner/OU=DC/O=USEPA/C=US@EPA;CN=Tonya
Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria Berns/OU=DC/O=USEPA/C=US@EPA[];
N=Tonya Fish/OU=R8/O=USEPA/C=US@EPA;CN=Ria
Berns/OU=DC/O=USEPA/C=US@EPA[]; N=Ria Berns/OU=DC/O=USEPA/C=US@EPA[]
Cc: CN=Amy Newman/OU=DC/O=USEPA/C=US@EPA;CN=Claudia
Fabiano/OU=DC/O=USEPA/C=US@EPA;CN=Evelyn
Washington/OU=DC/O=USEPA/C=US@EPA[]; N=Claudia
Fabiano/OU=DC/O=USEPA/C=US@EPA;CN=Evelyn
Washington/OU=DC/O=USEPA/C=US@EPA[]; N=Evelyn
Washington/OU=DC/O=USEPA/C=US@EPA[]
From: CN=Tina Laidlaw/OU=MO/OU=R8/O=USEPA/C=US
Sent: Thur 5/20/2010 9:54:26 PM
Subject: Call with Montana DEQ to discuss MHI Remedy Issues
ForHQ_May24-2010.ppt
AltAnalysisFlowChart__4HQ.doc
PublicEntity_Worksheet_EPACostmodel_Vol10_Circle.xls
(embedded image)
(embedded image)
(embedded image)

Attached are the materials for Monday's discussion with DEQ along with a draft agenda. The call-in number: [redacted] access code: [redacted] at 8:00 MST/ 10 EST.

Look forward to talking to everyone on Monday.

Tina

Draft Agenda:

Introductions / Kick-off call

DEQ Overview and presentation of the Flowchart describing the steps in the process (i.e., alternatives analysis, where variances come into play)

Walk through an example of the substantial and widespread evaluation

Discussion of the remedy issues
DEQ's concerns (fairness issues, simplicity and functionality)
EPA HQ's concerns with setting a cost cap state-wide and preference for a case-by-case evaluation

Tina Laidlaw
USEPA Montana Office
10 West 15th Street, Suite 3200
Helena, MT 59626
406-457-5016

Discussion of Affordability Assessment Procedure to Accompany the Base Numeric Nutrient Standards

Montana Department of Environmental Quality, with EPA region VIII and EPA HQ
May 24, 2010

Science: Nutrient concentrations DEQ is identifying as potential criteria are low, especially in western Montana*

Typical concentrations in trout streams about:

- Total P: 0.03 mg/L
- Total N: 0.3 mg/L

Typical concentrations in prairie streams about:

- Total P: 0.15 mg/L
- Total N: 1.1 mg/L

*Criteria seasonal (July 1-Oct 1 each year)

Policy: Economic Considerations

- We are building in an option for communities to receive relief from stringent nutrient standards based on:
  - Ability to pay for treatment (affordability)
  - Availability of treatment technology (limits of technology)

- *These options apply only to wastewater treatment beyond the federally mandated technology-based regulations (i.e., National Secondary Standards) and only to numeric nutrient standards*

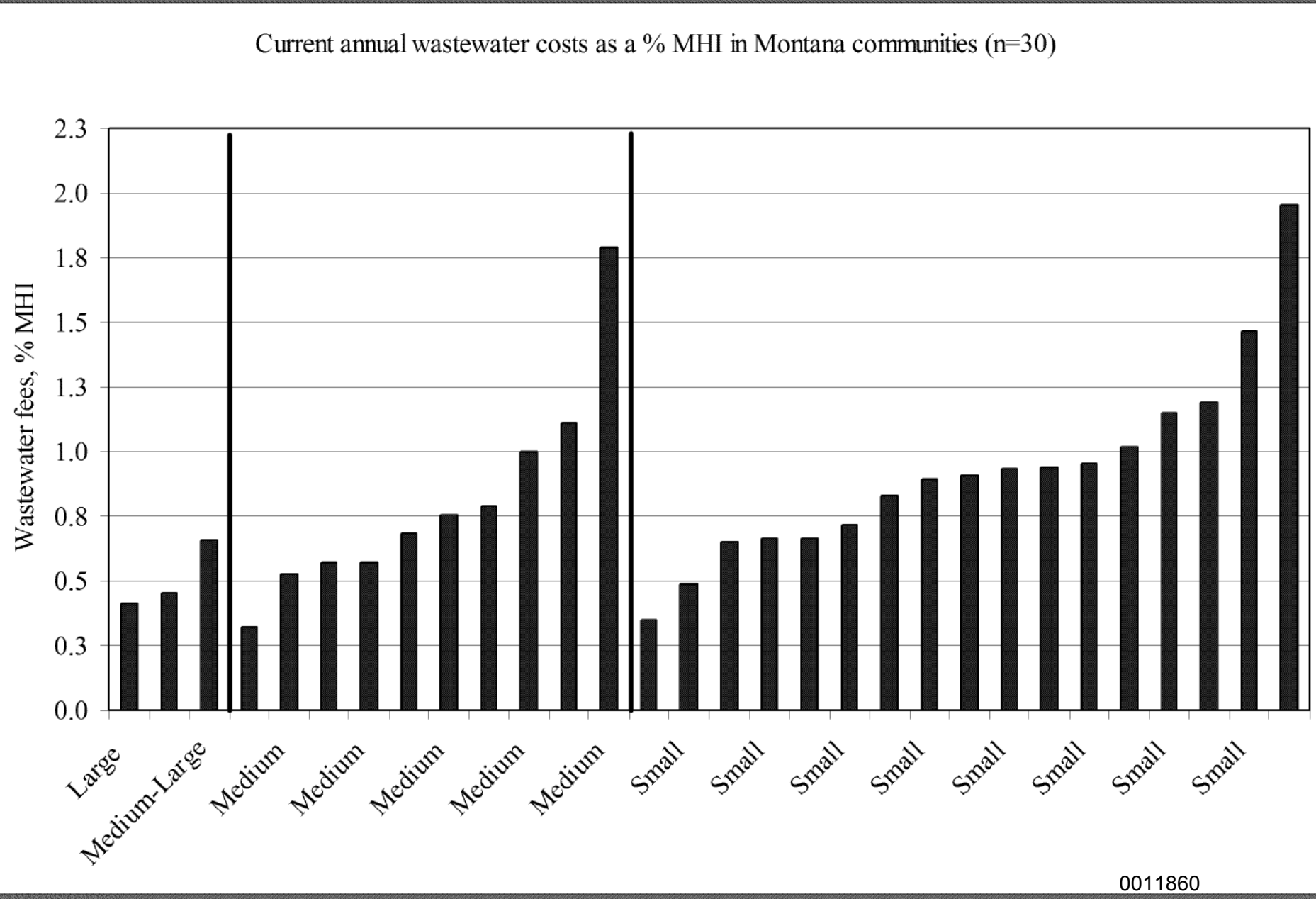
Alternatives analysis flowchart

Go to flowchart…

Wastewater Fee Survey (Jeff Blend & Paul LaVigne)

Objective: Collect a representative sample of fees Montana communities are currently paying for wastewater treatment, as a function of median household income

- Stratified Random Survey, 4 Community Sizes (by population)
  - Large (> 10,000); Medium-large (10,000-5,000); Medium (5,000-1000); and small (<1,000)
- To be selected, each community had to:
  - Currently be meeting its MPDES permit, with a plant that was upgraded in the last 15 years
  - Not be a nutrient-removal facility (only a few have been built thus far)
- For communities meeting the above criteria, individual communities from each population category were chosen using proportional allocation and random sampling (n = 30, total)
  - Current per-user waster fee data were then collected and compared to the community MHI (2000 census, but updated to 2008 using a standard formula)


Current annual wastewater costs as a % MHI in Montana communities (n=30)
Wastewater fees, % MHI
2.3
2.0
1.8
1.5
1.3
1.0
0.8
0.5
0.3
0.0
Large
Medium-Large
Medium
Medium
Medium
Medium
Medium
Small
Small
Small
Small
Small
Small
Small
Small
0011860

Fairness

- DEQ's proposed approach is more fair, as each community will pay for and work towards nutrient control in accordance with its members' financial capability

- If a MHI cost cap is not set, larger communities will always pay less per capita due to economics of scale
  - Do not want to set up a process that further stresses and depopulates small rural Montana towns

Benchmarks for the Remedy are Needed

Without a benchmark MHI as remedy when it has been shown that S & W impacts will occur, communities and their engineers have no way in advance to estimate what treatment level they should be designing to

- Like any inspection criterion, the inspectee can plan for and meet a criterion when he knows what it is beforehand

Some flexibility around the selected % MHI

- Whatever % MHI is used as the wastewater "cost cap" by DEQ (for discussion, say 1.5% MHI), there will need to be some flexibility around that percent, giving consideration to *reasonable* site-specific engineering issues such as:
  - The cost of the alternative technology. Perhaps technology **A** costs 1.7% MHI, but the next step down (technology **B**) costs 1.4%; go with 1.4%.
  - Available space to build WWTP and its affect on technology choices
  - Other engineering-specific factors

Once the WWTP design is finalized (giving consideration to above) and accepted by DEQ, its effluent capabilities (N and P concentrations and loads) would be carried through rule making as facility-specific temporary nutrient criteria

Discussion?

1. START HERE
Due to a permit renewal, a permittee's permit is reviewed to determine if it is in compliance with all currently applicable standards, including base numeric nutrient standards.

Assumes that nutrient standards and their implementation procedures have been adopted into rule

2. Based on a preliminary review, does it appear that the permittee can meet the base numeric nutrient standards?

NO **YES/MAYBE**

3. DONE. Temporary Nutrient Criteria not required.

4. Are there alternatives to discharging (e.g., compliance schedule, discharge elimination, land application, total or seasonal retention), or can the discharge be reduced? (based on a thorough alternatives analysis.)

NO **YES/MAYBE**

5. DONE. Community implements the alternative(s). **Temporary Nutrient Criteria not required**.

Trading is optional

6. Are there viable (i.e., cost effective) nutrient trading options (point or non-point) available to the community consistent with DEQ's trading policy?

NO **YES/MAYBE**

7. Can nutrient trading completely offset the community's pending nutrient waste load allocation?

NO **YES**

8. DONE. Community implements trading with point and/or non-point trading partner, and trade conditions are enforced in the MPDES permit (see DEQ's trading policy and trading implementation guidance).

Temporary Nutrient Criteria not required.

9. Community evaluates whether they are or are not eligible for temporary nutrient criteria.
Are the economic impacts substantial and widespread?

NO **YES**

10. What is the community's current waste water rate compared to the community's current median household income?

≤ X% > X%

11. Will the cost of going all the way to LOT result in substantial and widespread impacts?

NO **YES**

12. Remedy A. Temporary nutrient criteria concentrations and load will then equate to the limits of technology (LOT).

13. Remedy B. Community is eligible for temporary nutrient criteria (aka affordability variance from base numeric nutrient standard) based on economic hardship.

The temporary nutrient criteria will equate to the concentrations and load resulting from the technology, trading offset, or combination actions that bring new user rates (after actions are complete) to X% MHI.

14. Remedy C. Community is eligible for temporary nutrient criteria (aka affordability variance from base numeric nutrient standards) based on economic hardship.

Since they are already paying > X% MHI for sewer, The temporary nutrient criteria would be set equal to concentrations and load from whatever wastewater treatment system they have or are required to upgrade to due to other standards requirements

15. Done. Concentrations and loads from each remedy are adopted into rule by the Department after a public hearing. The temporary nutrient criteria are subject to periodic review to assure that the justification for them is still reasonable (e.g., no new cost effective nutrient removal technologies have come along since the last re-justification).

0011865

Instructions: Review the instructions below for an overview of each step that needs to be taken for the economic analysis of a public wastewater facility. Then, start at Worksheet A and work through each of the worksheets until you finish the analysis. The next tab after this one--the 'Summary Worksheet' tab--is to be filled out after you work through each worksheet in order to summarize your results. For a Non-Degredation analysis, go directly to the second to last tab labeled "Non-Deg", read the instructions, and then start at Worksheet A.

Summarized below are the steps that need to be taken for the economic analysis of a public wastewater facility. Also provided to the right is a flowchart that summarizes those same steps. It is highly recommended that you read through the complete 'EPA Interim Economic Guidance for Water Quality Standards' (EPA Guidance) which can be found on-line at http://www.epa.gov/waterscience/standards/econworkbook/. The instructions in this Excel spreadsheet are not meant to be a substitute for the full EPA Guidance. The worksheets provided in this Excel document correspond directly to the EPA Guidance, although it is important to note that several **key changes** have been made from the EPA Guidance in various sections of this worksheet in order to tailor this analysis to Montana's needs.

OVERALL STEPS SUMMARY	**NOTES**
Step 1: Verify Project Costs and Calculate the Annual Cost of the Pollution control project	
Step 2: Calculate Total Annualized Pollution Control Costs Per Household	
Steps 3-5: The Substantial Test	
Step 3: Calculate and Evaluate the Municipal Preliminary Screener Score-- identifies only entities that can pay for sure	If the public entity passes a significant portion of the pollution control costs along to private facilities or firms, then the review procedures outlined in Chapter 3 of the EPA workbook for 'Private Entites' should also be consulted to determine the impact on the private entities.
Step 4: Apply the Secondary Test - This measurement incorporates a characterization of the the socio-economic and financial well-being of households in the community.	The ability of a community to finance a project may be dependent upon existing household financial conditions within that community.

Step 5: Assess where the community falls in The Substantial Impacts Matrix - This matrix evaluates whether or not communities are expected to incur **substantial** economic impacts due to the implementation of the pollution control costs. If the applicant cannot demonstrate substantial impacts, then they will be required to meet existing water quality standards. If they can demonstrate substantial imapcts, then the applicant moves on to the Widespread Test.	The evaluation of substantial impacts resulting from public entity compliance with water quality standards includes two elements, 1) financial impacts to the public entity (reflected in increased household wastewater fees) and 2) current socioeconomic conditions of the community. Governments have the authority to levy taxes and distribute pollution control costs among households and businesses according to the tax base. Similarly, sewage authorities charge for services, and thus can recover pollution control costs through users fees. In both cases, a substantial impact will usually affect the wider community. Whether or not the community faces substantial impacts depends on both the cost of the pollution control and the general financial and economic health of the community.

Step 6-Widespread Test

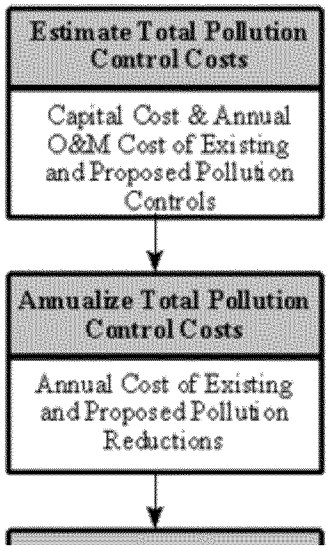
Step 6: If impacts are expected to be substantial, then the applicant goes on to demonstrate whether they are also expected to be **widespread** (Go to "DEQ Widespread Criteria" tab)**.**	Estimated *changes* in socio-economic indicators will be used to determine whether widespread impact has occurred

needs to be taken for the
and work through each of
ummary Worksheet' tab--
e your results. For a Non-
read the instructions, and

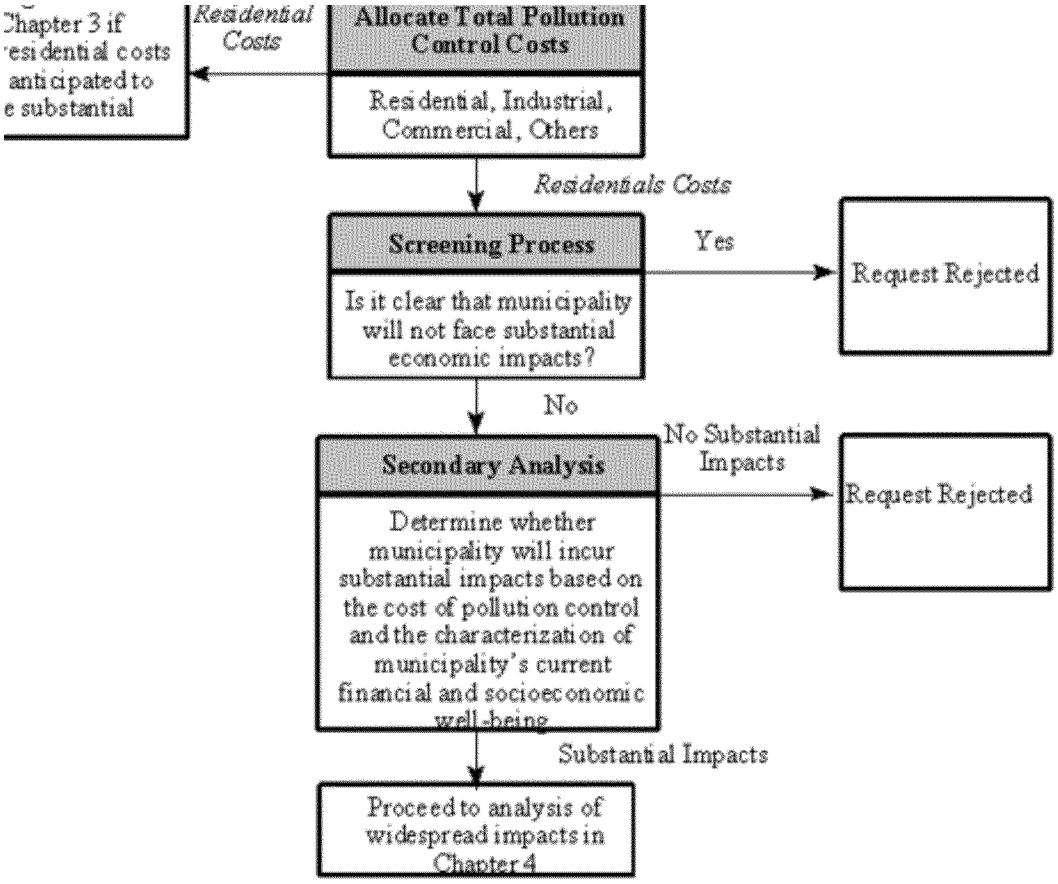
ater facility. Also provided to the
gh the complete 'EPA Interim

eet are not meant to be a
rectly to the EPA Guidance,
various sections of this

Figure 2-1:
Measuring Substantial Impacts
(Public Entities)



e guidance in Non-


Chapter 3 if
esidential costs
anticipated to
e substantial
Residential Costs
Allocate Total Pollution Control Costs
Residential, Industrial, Commercial, Others
Residentials Costs
Screening Process
Is it clear that municipality will not face substantial economic impacts?
Yes
Request Rejected
No
Secondary Analysis
Determine whether municipality will incur substantial impacts based on the cost of pollution control and the characterization of municipality's current financial and socioeconomic well-being
No Substantial Impacts
Request Rejected
Substantial Impacts
Proceed to analysis of widespread impacts in Chapter 4

you reach for each step for your analysis. This is help to give a simple overview of what you found out.

OVERALL STEPS SUMMARY

the Annual Cost of the Pollution control project	$4.6 million total in capital costs plus O and M costs or $0.43 million per year in annualized costs
Step 2: Calculate Total Annualized Pollution Control Costs Per Household	$1,655 per household per year for existing ($216) and new wastewater costs ($1,439)
Step 3: Calculate and Evaluate the Municipal Preliminary Screener Score--identifies only entities that can pay for sure	4.73% which is large--There is a need to proceed to the Secondary Test
Step 4: Apply the Secondary Test and Report what you find - This measurement incorporates a characterization of the community's current financial and socioeconomic well-being	The secondary score for Circle came out to be 2.00 or mid-range
Step 5: Assess where the community falls in The Substantial Impacts Matrix - This matrix evaluates whether or not communities are expected to incur **substantial** economic impacts due to the implementation of the pollution control costs. If the applicant cannot demonstrate substantial impacts, then they will be required to meet existing water quality standards. If they can demonstrate substantial imapcts, then the applicant moves on to the Widespread Test.	Circle would bear substantial impacts under the Significance Test (using the substantial impacts matrix) so a Widespread test is needed.
Step 6: If impacts are expected to be substantial, then the applicant goes on to demonstrate whether they are also expected to be **widespread in the study area** (Go to "DEQ Widespread Criteria" tab)**.**	The Widespread test suggests that Circle would suffer widespread economic and social impacts from having to meet nutrient standards. This would argue for either a variance, an extended time table, or a different plan to meet standards
Step 7: Present the Final Conclusion	_____

sults that you reach for each step for

Tests for Substantial Impacts

Worksheet A--Pollution Control Project Summary Info

For the purposes of this workbook, a **public entity** refers to any governmental unit that must comply with pollution control requirements in order to meet water quality standards. The most common example is a municipality or sewage authority operating a publicly owned treatment works (POTW) that must be upgraded or expanded. Municipalities, however, may also be required to control other point sources or nonpoint sources of pollution within their jurisdiction.

Note: The most cost effective project is preferred. Public entities should consider a broad range of discharge management options including pollution prevention, end-of-pipe treatment, and upgrades or additions to existing treatment. Specific types of pollution prevention activities that should be considered are found in Chapter 2 of the EPA Guidence.

Whatever the approach, the applicant must demonstrate that the proposed project is the most appropriate means of meeting water quality standards and must document project cost estimates. ***If at least one of the treatment alternatives that meets water quality standards will not have a substantial financial impact, then the community should not proceed with the analysis presented in the rest of this workbook.***

For the "Substantial" portion of this test, please define the affected area and use that throughout this section. The area is defined as the governmental jurisdiction responsible for paying wastewater compliance costs--typically a town of municipality. If only a proportion of the community is served, only those who pay are the affected community; however, if such fine-resolution data are not available, then data for the whole community may be used instead.	The City limits of Circle. The city limits overlap precisely with the wastewater collection district.
Current Capacity of the Pollution Control System (skip this for Non-Deg)	0.5 MGD (million gallons p
Design Capacity of the Pollution Control System	0.75 MGD (million gallons p
Current Excess Capacity % (skip this for Non-Deg)	33%
Expected Excess Capacity after Completion of Project %	150%
Projected Groundbreaking Date	Jan-11
Projected Date of Completion	Jan-12
Please describe the pollution control project being proposed, including drectly relevant infrastructure needed in addition to the plant (e.g. new sewage pipes) and how the project meets water quality standards:	sprayer to land apply the water after treatment. This would allow Circle meet nutrient standards.
Please describe the other pollution control options considered, explaining why each option was rejected. Explain how each alternative would have met water quality standards.	Simply modifying the existing lagoons would not be enough to meet the nutrient standards.
Is the proposed project the least expensive that can be used to meet the water quality standards goals? If not, give reasons why it is not.	Yes

pacts

rcle. The city limits overlap precisely with
astewater collection district.

er day)
er day)

tment to complement existing lagoon ponds. This would include a sprayer to land apply the water after treatment.
le meet nutrient standards.

existing lagoons would not be enough to meet the nutrient standards.

Tests for Substantial Impacts

Worksheet B-Calculation of Total Annualized Project Costs for Required Upgrades

Note: The capital portion of project costs is typically financed over approximately 20 years, by issuing a municipal debt instrument such as a general obligation bond or a revenue bond. Local governments may also finance capital costs using bank loans, state infrastructure loans (revolving funds), or federal subsidized loans (such as those offered by the Farmers Home Administation)

If project costs were estimated for some prior year, these costs should be adjusted upward to reflect current year prices using the average annual national Consumer Price Index (CPI) inflation rate for the period

Capital Cost of Project		$4,000,000
Other One-Time Costs of Project (Please List, if any):		$0
	_____	$600,000
	_____	$0
	_____	$0
	_____	$0
Total Capital Costs (Sum column) $ (1)		$4,600,000
Portion of Capital Costs to be Paid for with Grant Monies $ (2) (Paul)		$2,000,000
Capital Costs to be Financed [Calculate: (1) - (2)] $ (3)		$2,600,000
Type of financing (e.g., G.O. bond, revenue bond, bank loan)	G.O. Bond	
Interest Rate for Financing (expressed as decimal) (i)		0.06
Time Period of Financing (in years) (n)		20
Annualization Factor =[i/ [[(1+i)to nth power -1]]+i (or see Appendix B) (4)		0.08718
Annualized Capital Cost [Calculate: (3) x (4)] (5)		$226,680

undergroun d pipes

Engineering Report

likely to be used.

by some factor to account for non-payment.

B. Operating and Maintenance Costs

Annual Costs of Operation and Maintenance (including but not limited to: monitoring, inspection,permitting fees, waste disposal charges, repair, administration and replacement.) (Please list below and state in terms of dollars per year)

	$200,000
	$0
	$0
	$0
Total Annual O & M Costs (Sum column) $ (6)	$200,000

C. Total Annual Cost of Pollution Control Project

Total Annual Cost of Pollution Control Project [(5) + (6)] $ (7)	$426,680

cts

g a municipal debt instrument such as a general
ans, state infrastructure loans (revolving funds), or

t current year prices using the average annual national

This includes costs of directly relevant new infrastructure needed to meet requirements such as underground pipes

This should be a realistic amount and should be identical to financing plans identified in the Preliminary Engineering Report

The interest rate should reflect the type of debt instrument likely to be used.

Loan coverage should be included - this applies to revenue bonds and varies between 110 to 125% depending on funding source. SRF is 125%. Loan coverage is the annual debt multiplied by some factor to account for non-payment.

Tests for Substantial Impacts

Worksheet C-Calculation of Total Annual Pollution Control Costs Per Household

Include those households in the study area that pay wastewater fees on the system in question.

directly into cell F19. It may still be useful to fill in the rows above that cell--especailly the percentage amount household are currently paying of the existing total wastewater fee. If the current fee being paid is not available, then you can use the formula provided here to estimate current annual fee.

A. Current Pollution Control Costs:

Current sewer rate

Total Annual Cost of Existing Pollution Control $ (1)	$55,500
Amount of Existing Costs Paid By Households $ (2)	$55,500
Percent of Existing Costs Paid By Households %(3)	100.00%
Number of Households* (4)	257
Annual Cost Per Household [Calculate: (2)/(4)] $ (5)	$216

infrastructure such as sewer lines

here to estimate current annual fee.

* Do not use number of hook-ups.

B. New Pollution Control Costs

Are households expected to provide revenues for the new pollution control project in the same proportion that they support existing pollution control? (Check a, b or c and continue as directed.)

a) Yes [fill in percent from (3)] percent.(6a) _____

b) No, they are expected to pay _____ percent.(6b) _____

c) No, they are expected to pay based on flow. (Continue on Worksheet C, Option A--See below) X

Total Annual Cost of Pollution Control Project [Line (7), Worksheet B] $ (7)

Proportion of Costs Households Are Expected to Pay [(6a) or (6b)] (8)

Amount to Be Paid By Households [Calculate: (7) x (8)] $ (9) 0

Annual Cost per Household [Calculate: (9)/(4)] $ (10)

ally add to the number found in F19 and give a final result in box F46.

C. Total Annual Pollution Control Cost Per Household

Total Annual Cost of Pollution Control Per Household (5) + (10) $ (11)	$216

Worksheet C: Option A---Flow based

Calculation of Total Annual Pollution Control Costs Per Household--Flow based

A. Calculating Project Costs Incurred By Households Based on Flow

Expected Total Usage of Project (eg. MGD for Wastewater Treatment)	0.75	(1)
Usage due to Household Use (MGD of Household Wastewater)	0.65	(2)
Percent of Usage due to Household Use [Calculate: (2)/(1)]	0.86667	(3)
Total Annual Cost of Pollution Control Project	$426,680	(4)
Industrial Surcharges, if any	$0	(5)
Costs to be Allocated [Calculate: (4) - (5)]	426,680	(6)
Amount to Be Paid By Households [Calculate: (3) x (6)]	369,789	(7)
Annual Project Cost per Household [Calculate: (7)/Worksheet C, (4)]	1,439	(8)

C. Total Annual Pollution Control Cost Per Household

Annual Existing Costs Per Household [Worksheet C, (5)]	$216	(9)
Total Annual Cost of Pollution Control Per Household [(8) + (9)]	$1,655	(10)

cts

al pollution control costs for households, it is recommended that
stewater fee that is currently being paid by households. You
from the municipality that is being studied. Once you obtain that
It may still be useful to fill in the rows above that cell--especailly
e currently paying of the existing total wastewater fee. If the
, then you can use the formula provided here to estimate current

This should include all existing charges related to wastewater treatment as well as fees associated with directly relevant existing wastewater infrastructure such as sewer lines

Use the actual current annual wastewater fee that is being paid by households. If the current fee being paid is not available, then you can use the formula provided here to estimate current annual fee.

As an alternative to the formula outlined here for new pollution control costs, you may instead use the rate the municipality is intending to charge customers to pay for the new WWTP. If this given rate includes both existing and new costs, then this is the final 'annual cost' number to be used in the municipal household screener in the next tab and the number to enter in box B73. If the new costs given are to be added on to existing costs, then enter the 'new cost' number in box B68, and this number will automatically add to the number found in F19 and give a final result in box F46.

Tests for Substantial Impacts

Worksheet D-Municipal Preliminary Screener

The Municipal Preliminary Screener indicates quickly whether a public entity will not incur any substantial economic impacts as a result of the proposed pollution control project. The formula is as follows:

(Total Annual Pollution Control Cost per Household/Median Household Income) X 100

Also added to this screener is a test of Low to Moderate Household Income Percentage rate to account for towns with a high Median Household Income, yet also with a disproportionately high number of low to moderate income households.

A. Calculation of The Municipal Preliminary Screener

Total Annual Pollution Control Cost Per Household [Worksheet C, (11) or Worksheet C, Option A (10)] (1)	$1,655	then use that number rather than using the formula in Tab C.
Median Household Income (MHI)* $ (2) (use CPI to update income number to current year)	$34,974	Estimates, found at http://www.census.gov/hhes/www/saipe/index.html
Municipal Preliminary Screener (Calculate: [(1)/(2)] x 100) %(3)	**4.73%**	

B. Evaluation of The Municipal Preliminary Screener

Impact level of additional water treatment costs is [Little, mid-range, large]--(see below)	**Large**	
Low to Moderate Income Percentage Rate of the town or community (LMI). See below for where the LMI percentage of your municipality falls .	41.1	at U.S. Census Bureau, Census 2000.

is 'low' or 'mid-range', then it is assumed that the cost of meeting standards will not impose an undue financial burden and the analysis is done. In this case, no variance will be given and it is not necessary to continue with the Secondary Test in the next tab. If the Municipal Preliminary Screener benchmark comparison is 1% or greater, then it is necessary to continue to the secondary test in the next tab. Also, if the Municipal Preliminary Screener is clearly less than 1.0% and the LMI is 'high', then one may continue the analysis and move on to the Secondary Test.

Is a secondary test necessary? **Yes**

Municipal Preliminary Screener Benchmark Comparison:

Little Impact	**Mid-Range Impact**
Less than 1.0%	1.0% - 2.0%
Indication of no substantial economic impacts	**Proceed to Secondary Tests**

Low to Medium Income Percentage Rate Benchmark Comparison:

Low	Mid-Range
Less than 33%	33-62%

cts

n or municipality has already calculated a new wastewater annual fee to account existing and new wastewater treatment levels, then use that ather than using the formula in Tab C.

ce, Census and Economic Information Center, (406) 841-2740. She uses the U.S. Census Bureau, Small Area Income and Poverty Estimates, found ww.census.gov/hhes/www/saipe/index.html

lata, contact Susan Ockert-Montana Dept of Commerce/Census and c Information Center, (406) 841-2740. This data also found at U.S. Census Census 2000.

nd the LMI is 'low' or 'mid-range', then it is assumed alysis is done. In this case, no variance will be given pal Preliminary Screener benchmark comparison is 1% the Municipal Preliminary Screener is clearly less than dary Test.

Large Impact
Greater than 2%

High	
More than 62%	

Tests for Substantial Impacts

Worksheet E: Data Used in the Substantial Impacts-Secondary Test

socioeconomic health of households in the community, and thus their ability to take on further costs of meeting additional water quality standards. In the data collection below, use the latest data available. Obtain as many of these values as possible by contacting (unless otherwise indicated) Susan Ockert at the Montana Department of Commerce, Census and Economic Information Center at (406) 841-2740. Again, for the "Substantial" portion of this test, the affected area is the governmental jurisdiction responsible for paying wastewater compliance costs--typically a town or municipality.

A. Data Collection for

Data	Potential Source
Poverty Rate of a town or community	Source: U.S. Census Bureau, Census 2000: Compiled by Census and Economic Information Center, Montana Department of Commerce, (406) 841-2740, www.ceic.mt.gov,
Low to Moderate Income Percentage Rate of a town or community (LMI)	Source: Census 2000, Susan Ockert-Montana Dept of Commerce/Census and Economic Information Center, (406) 841-2740, www.ceic.mt.gov,
Community Unemployment Rate	Source: Montana Department of Labor and Industry, Research and Analysis Bureau, Local Area Unemployment Statistics compiled by CEIC
Montana Unemployment Rate	Montana Dept of Labor and Industry, Research and Analysis Bureau, Local Area Unemployment stats compiled by CEIC.--Barbara Wagner. . Taken from Bureau of Labor Statistics
Community Median Household Income	Susan Ockert-Montana Dept of Commerce, Census and Economic Information Center, uses data from the U.S. Census Bureau, Small Area Income and Poverty Estimates. That web site is http://www.census.gov/hhes/www/saipe/index.html
State Median Household Income	Susan Ockert-Montana Dept of Commerce/Census and Economic Information Center
Local Property Tax Revenues + Local Fees	*Annual Financial Reports of the Cities and Towns of Montana*, sheet entitled "Government-wide Statement of Activity", Local Government Services Bureau, Dept of Administration, State of Montana, Kim Smith, (406) 841-2905. or Community Financial Statements, Town, County or State Assessor's Office

City or town population	http://ceic.mt.gov/. Specifically, http://ceic.mt.gov/Demog/estimate/pop/City/SUB-EST2007-04-30.htm
Revenues, Taxes and Fees Burden Index (should automatically calculate)	(Total Property Tax, Fees & Revenues/Community MHI/population)*100

pacts

the socioeconomic health of households in the
standards. In the data collection below, use the
herwise indicated) Susan Ockert at the Montana
Again, for the "Substantial" portion of this test, the
e costs--typically a town or municipality.

_____ *(List town)*

Value	Notes
___18.3_____ %	Montana average is about 13.0%. See http://www.census.gov/hhes/www/saipe/modelinput.html and http://www.census.gov/hhes/www/saipe/nontechdoc/intro.html for more info
____41.1____ %	
__3.5_____%	Susan Ockert
6.7% --latest figure for state of Montana, Dec 2009	http://www.bls.gov/lau/
$34,974.00	See http://www.census.gov/hhes/www/saipe/modelinput.html and http://www.census.gov/hhes/www/saipe/nontechdoc/intro.html for more info
$43,531	for 2007
$476,799	

542

2.52

Tests for Substantial Impacts

Worksheet F- Substantial Impacts: Calculating the Secondary Score

The Secondary Test is designed to build upon the characterization of the financial burden identified in the Municipal Preliminary Screener.
The Secondary Test describes the socioeconomic health of the households in a community and thus their ability to pay for additional wastewater treatme

There are five socioeconomic criteria that are summed up and averaged to see where the households within a community fall in terms of financial health.
For each of the five criteria, a **strong** score is recorded in the right hand column as a '3', indicating strong socioeconomic health for that criteria and thus a greater chance of being able to pay for additional wastewater treatment (and lesser chance of a variance).
A **mid-range** score is recorded as a '2' and indicates moderate or average socioeconomic health for the particular criteria. A **weak** score should be recorded as a '1' and indicates poor socioeconomic health for the given criteria or less ability to pay (and a greater chance of being granted a variance).
The average score of all five indicators falls into those same categories and should be judged in the same way.

Note: The last criteria, Property tax, fees and revenues divided by MHI and population, gives an indication of the existing burden on local residents within the municipality of fees for local services and of local taxes. Those citizens of towns already paying a lot of money relatively for services such as wastewater and garbage and/or paying higher local taxes are assumed to be less able to pay additional monies for additional wastewater treatment.

Please record the scores in the final column. This table will sum the scores and compute an average. Then, move on to the next tab which is the Substantial Impacts Matrix.

Table 2-1 Secondary Indicators for the Municipality (or study area)

	Secondary Indicators			
Indicator	Weak*	Mid-Range**	Strong***	Score
SocioEconomic Indicators				
Poverty Rate	More than 22%	10-22%	Less than 10%	2
Low to Medium Income Percentage (LMI)	More than 62%	33-62%	Less than 33%	2
Unemployment	More than 1% above State Average (>5.9%)	State Average----6.7%	More than 1% below State Average (<3.9%)	3
Median Household Income	More than 10% below State Median	State Median--$43,531	More than 10% above State Median	1
Property Tax, fees and revenues divided by MHI and indexed by population	More than 3.5	3.5 to 2	Less than 2	2

Update this criteria every few years (or after a census)

*** Weak is a score of 1 point**
**** Mid-Range is a score of 2 points**
***** Strong is a score of 3 points**

SUM: 10

AVERAGE: **2.00** divided by the number of Indicators given a score

http://www.epa.gov/waterscience/standards/econworkbook/table21.html

must
provide an explanation as to why the indicator is not appropriate or not available.

nt.

qual to the Sum divided by the number of
Indicators given a score

Tests for Substantial Impacts

Assessment of Substantial Impacts Matrix

Table 2-2
Assessment of Substantial Impacts Matrix

	Minicipal Preliminary Screener		
	Less than 1%	1% to 2%	Greater than 2%
Secondary score			
Less than 1.5	Borderline	X	X
Between 1.5 and 2.5	$	Borderline	X
Greater than 2.5	$	$	Borderline

Result: **required new pollution control to meet nutrient criteria. Continue on to Widespead Test.**

X-Impacts are Substantial: Move to widespread analysis
Borderline-Impacts may be Substantial: Move to widespread analysis
$-Impacts are not substantial and the community can pay: No variance

example, if the Screener score is 1.1 and the Secondary Score is 2.4, the analyst should note that although the town falls into the 'borderline' category, it comes close to falling into the '$' category.

would be signficant, and Circle may have ulty paying for required new pollution to meet nutrient criteria. Continue on to Widespead Test.

into either the "X" or the "Borderline" category should proceed to pter 4 in the EPA Guidance) to determine whether the impacts also expected to be Widespread. The analyst should note if the ther category. For example, if the Screener score is 1.1 and the 2.4, the analyst should note that although the town falls into the , it comes close to falling into the '$' category.

Criteria for Widespread Impacts

DEQ Widespread Criteria - Factors to Consider in Making a Determination of Widespread Social and Economic Impacts

The financial impacts of undertaking pollution controls could potentially cause far-reaching and serious socioeconomic impacts. If the financial tests outlined in Chapter 2 and 3 of the EPA Guidance or in the Substantial Test tabs of this worksheet suggest that a discharger (public or private) or group of dischargers will have difficulty paying for pollution controls (that the effects will be Substantial), then an additional analysis must be performed to demonstrate that there will be widespread adverse impacts on the community or surrounding area. There are no economic ratios per se that evaluate socioeconomic impacts. Instead, the relative magnitudes of indicators such as increases in unemployment, losses to the local economy, and changes in disposable income should be taken into account when deciding whether impacts could be considered widespread. Since EPA does not have standardized tests and benchmarks with which to measure these impacts, the following guidance is provided as an example of the types of information that should be considered when reviewing impacts on the surrounding community.

At a minimum, the analysis must define the affected community (the geographic area where project costs pass through to the local economy), consider the baseline economic health of the community, and finally evaluate how the proposed project will affect the socioeconomic well-being of the community. Applicants should feel free to consider additional measures not mentioned here if they judge them to be relevant. Likewise, applicants should not view this guidance as a check list. In all cases, socioeconomic impacts should not be evaluated incrementally, rather, their cumulative effect on the community should be assessed.

Answer the four 'Descriptive Categories' as fully as possible. Then, answer the six primary criteria. **The answers to these primary criteria in relation to the Descriptive categories will form the backbone of the final answer to whether impacts would be Widespread.** If there is still uncertainty as to whether impacts are widespread, answer the Secondary questions. The Secondary questions are used to help answer the question of whether impacts are Widespread if the Primary Criteria do not yield a clearcut answer. The interdependence between the affected entity(ies) and the affect community is a major factor in demonstrating that the impacts are widespread.

INPUT CATEGORY	Weight of Importance	Answer
Descriptive		
Define the affected study area or community. This is the geographic area where direct project costs pass through to the local economy. In the case of municipal pollution control projects, the affected community is most often the immediate municipality. There are, however, exceptions where the affected community includes individuals and areas outside the immediate community. For example, if business activity of the region is concentrated in the immediate community, then outlying communities dependent upon the immediate municipality for employment, goods, and services should also be included in the analysis. Thus, the Widespread geographical area can encompass a greater area than the immediate town and/or those served by the wastewater system. It can encompass a greater area than defined in Substantial impacts.[1] (1)	Descriptive	The Town of Circle, and an area within 25 miles of Circle. The closest town to Circle of any significant size is about 45 miles away, and it is therefore assumed that Circle is the main economic hub (and thus has influence) within a distance of 25 miles.
Describe the current general economic trend in the study area or community--qualitatively or quantitatively. (2)	Descriptive	Circle's economy is on a long-term general decline. It's economic output is currently stagnant which is lower than the state average (on average, economic output is growing in Montana). Circle probably is not suffering the current Rececession as bad as most parts of the nation.
Name the main industry(s) in the study area and indicate if any major industries are intending to enter the area or leave the area. What is the current health of that main industry or of each industry if more than one? Is the boom and bust potential for the study area great? (3)	Descriptive	Ag, ranching and retail are the largest industries, and tend to go through boom and bust cycles depending on commodity prices. Right now, agriculture is doing at least as well as the economy in general due to medium commodity prices. No major industries expected to enter or leave Circle area.
Indicate the general population trend in the area. Is the community growing or shrinking? Specifically state if young people are staying in the area or leaving after they graduate school. (4)	Descriptive	Circle is losing population. It's population has declined an estimated 11.6% from 2000-2006. The majority of its young people are leaving town for better economic opportunities.

[1] Here are some examples. If business activity in the region is concentrated in a nearby community and not in the immediate community, then the nearby community may also be affected by loss of income in the immediate community and should be included in the analysis. Similarly, if a large number of workers commute to an industrial facility that is significantly affected by the costs, then the affected community should include the home communities of commuters as well as the immediate community.

Primary Criteria

Answer the following 'Primary' questions. If the answers to questions 5 through 10 clearly indicate that there would be No Widespread Impacts, you may answer the secondary questions or end the analysis. If the answers to questions 5 through 10 are inconclusive, then answer the secondary questions. If the answers to questions 5 through 9 indicate that Impacts are Widespread, and the answer to 10 indicates no widespread benefits from meeting standards, then there **will likely** be widespread impacts according to the analysis. In this case, you are not required to answer secondary questions, but you may if you want. If the answers to questions 5 through 9 indicate that Impacts will be Widespread, and answer to 10 is that there might be positive widespread benefits from meeting standards, then there may not be widespread impacts. Please answer secondary questions in that case.

Describe how the economy in general would be affected, if at all, by having to meet water quality standard. Items of discussion could include any loss in population, changes in median income, the closing (or moving to another area) of one or more businesses and industries, or the impact on community and/or commercial development potential in the study area. One can use the baseline data from the Substantial tests to support this answer. (5)	Primary Importance	The economy, which is already suffering, could be hit hard by the higher wastewater rates. It is possible that employment could be slightly affected by the rates if some people or businesses left. More importantly, household budgets would be hit hard. There are not enough households in Circle to spread out the new costs to keep rate down at a low level (below 2% MHI).

another area) of one or more businesses and industries, or the impact on community and/or commercial development potential in the study area. One can use the baseline data from the Substantial tests to support this answer. (5)	Primary Importance	people or businesses left. More importantly, household budgets would be hit hard. There are not enough households in Circle to spread out the new costs to keep rate down at a low level (below 2% MHI).
Will meeting the nutrient standards lead to a loss of employment due to a reduction in business activity or closure? If so, how many people do you estimate (or what % increase in unemployment rate) would become unemployed as a result? Please give specific examples of what might happen using your best professional judgement (6)	Primary Importance	Unemployment would only be affected if businesses leave Circle due to higher wastewater costs which is unlikely. However, business could lose sales if discretionary income decreases as a result of higher wastewater fees. Less than five people expected to lose jobs, if any.
If unemployment occurred as a result of meeting standards, are there other ample job opportunities to take up the slack (refer to current unemployment rate in Secondary test)? Please give examples. (7)	Primary Importance	To the extent that unemployment increases, there would not likely be ample job opportunities to take up the slack considering the lack of business in the area.
Will meeting standards have a substantial effect on residential and commercial development patterns. For example, would homes and businesses choose to locate in different areas as a result of higher wastewater fees? In this answer, one may explore historical deveolopment patterns, financial and/or tax revenue impacts, population growth impacts, unintended impacts on water quality and any other potential consequences (good or bad). (8)	Primary Importance	It is possible that new homes built in Circle would be built outside of the wastewater system if costs rose substantially. However, not many new homes are being built currently in Circle, as Circle is losing population and is lacking in economic opportunities. It is doubtful that a signficant number of existing residents would move out of town due to high wastewater fees alone, although a few may.
What would be the estimated impact, if any, on disposable income of having to meet standards? How would this change in disposable income affect the overall economy in the area under consideration? Please give specific examples of what might happen using your best professional judgement (9)	Primary Importance	Disposable income would decrease in direct proportion to wastewater fees increasing. This could adversely impact the existing businesses in Circle. For example, discretionary income could decrease for eating out, or buying new vehicles or recreational goods. Those under the poverty line may not currently have discretionary income to spare.
Would increased levels of water quality as a result of meeting water quality standards have any widespread positive economic and/or ecological effects on the community? Would expenditures on pollution controls to reach attainment have any positive effects on the community? (10)	Primary Importance	The Redwater River would benefit from better water quality and the ecological benefits that come from improved water quality (such as improved insect health). However, most current impairment on the Redwater River is from non-point sources.
Based on your answers to the primary questions, is there a need to answer these secondary questions? If no, go to question 18. If yes, answer the secondary questions	Probably not, but good idea to answer them anyway	It is fairly clear that Circle will experience Widespread impacts in addition to Substantial impacts, so answering the Secondary impacts may not be necessary, but could help.

Secondary Criteria

Answer these Secondary questions to the best of your ability. If you think any of these are of primary importance, explain further and explain why. Taken as whole, determine whether these secondary questions in addition to the Primary quesitons support or do not support that impacts would be widespread.

What would be the estimated change in Median Household Income, if any, as a result of having to comply with numeric nutrient standards? Describe qualitatively and/or qualitatively. If any change, how would this affect the Median Household Income of the community in comparison to the state median which is $43,531 (Source: Susan Ockert, CEIC, extracted from Decision Data Resources)? (10)	Secondary	The median household income would not be affected most likely, unless mass unemployment happened (unlikely), but household budgets would be squeezed by the new high costs--almost $2,000 per year.
What would be the estimated change in poverty level, if any, as a result of having to comply with water quality standards and would that change the comparison to the Montana average? The Montana average percent of households below the poverty line is 14.6%. (11)	Secondary	Probably no effect, because household income is not expected to change. However, some households in poverty or close to poverty would experience more financial difficulty as a result.
What would be the impact on property values within the affected area, if any, from having to meet numeric nutrient standards? (12)	Secondary	There could be a drop in property values if enough people leave. This is unlikely but possible if Circle is seen as a place not to live.
Is a large percentage of the wastewater treatment plant used by one or a few entities that would be affected by water quality standards? If yes, and these entities were hurt or closed down as a result of pollution control costs, would significant burden be placed on the rest of the users of that system? (13)	Secondary	No

If appropriate, would there be any multiplier effects from cost or benefits as a result of having to meeting numeric nutrient criteria? In other words will a dollar lost or gained as a result of the criteria result in the loss or gain of more than one dollar in the study area (e.g. direct and indirect spending)? (14)	Secondary	These could be significant. Households would have less money to spend on other goods, and those effects could be significant in a small town with few businesses.
What would be the estimated change in overall net debt of the municipality as a result of having to meet numeric nutrient standards? (15)	Secondary	The change would be very large--an increase of about 250% ($2.6 million dollars) from the current 4.55% up to around 14% which is a high debt load for such a small town.
(For non-deg only). In the case of non-degradation, what is the community's majority opinion on growth and/or the entity coming into the town/region and building a facility? What is the community's majority opinion on degradation of the receiving stream's high quality water? (16)	Most Important (non-deg)	
Is there any additional information that suggests that there are unique conditions in the affected community that should also be considered? (17)	Secondary	There could be a slight increase in social services needed for those households that experience the brunt of the impacts.
Based on the criteria you just filled out and on your own judgement, will this community experience widespread impacts (or 'Important Impacts' for Non-Deg)? Please describe how you reached this decision. (18)		This community would likely experience widespread impacts in terms of having substantial expenses and the resulting multiplier effects on the businesses there. This would be a financial blow on a town stuggling to make things work as Eastern Montana empties out.

ARRIVING AT A CONCLUSION: The main question to ask is whether widespread economic impacts are likely to occur in the study area as a result of attempting to comply with numeric nutrient standards? (yes/no) The key aspect of a "widespread determination" is that it evaluate change in the socioeconomic conditions that would occur as a result of compliance (EPA 1995).

The analyst should take into account as many of the factors listed above as possible when making a decision on whether impacts are widespread. The decision should be made based on all appropriate factors in a comprehensive manner (rather than as a checklist). The analyst will use his or her judgement on whether all the factors taken together (including some that may not be on this list) constitute widespread impact. Likewise, applicants should not view this guidance as a check list. In all cases, socioeconomic impacts should not be evaluated incrementally; rather, their cumulative effect on the community should be assessed as a whole. Applicants should feel free to use anecdotal information to describe any current community characteristics or anticipated impacts that are not listed in the worksheet.

The analyst may want to weight some of these factors more than others. In some cases, the results from a single category might be sufficient to determine whether widespread impacts will occur, even if other factors suggest differently. These categories are weighted by how important they are relative to the general idea "widespread" is attempting to address, although the analyst can use their own weights if supported by evidence.

In most cases, impacts at the state level will be relatively minor. If not, then impacts are, BY DEFAULT, widespread

There may be secondary impacts from having to meet numeric nutrient standards (not captured by the primary and secondary tests to the community). Secondary impacts, for example, might include depressed economic activity in a community resulting from the loss of purchasing power by persons losing their jobs or leaving the area due to increased user fees.

Reductions in employment caused by compliance with the water quality standards could be widespread if workers have no other employment opportunities nearby. Impacts may also be significant where the public entity(ies) is a primary producer of a particular product or service upon which other nearby businesses or the affected community depend. The impacts of reduced business activities or closure will be far greater in this case than if the products are sold elsewhere.

Potentially, one of the most serious impacts on the affected community's economy is the loss of employment caused by a reduction in business activity or closure. Applicants should also consider whether the lack of alternative employment opportunities may lead to an increased need for social services in the affected community.

Helpful Resources

See http://censtats.census.gov/usa/usa.shtml and http://censtats.census.gov/usa/usa.shtml. Also, contact Susan Ockert-Montana Dept of Commerce/Census and Economic Information Center, (406) 841-2740.

contact Susan Ockert-Montana Dept of Commerce/Census and Economic Information Center, (406) 841-2740.

Contact Susan Ockert-Montana Dept of Commerce/Census and Economic Information Center, (406) 841-2740 or go to http://ceic.mt.gov/Demog/estimate/pop/City/SUB-EST2007-04-30.htm

what if triggering nondeg is
a result of just general
growth in the community?

example, in a rural community where the primary source of employment is agriculture, the reduction of fertilizer and pesticide runoff from farms would reduce the cost of treating irrigation water to downstream users. Another example might be an industrial facility discharging its wastewater into a stream that otherwise could be used for recreational cold-water fishing. Treatment or elimination of the industrial wastewater would provide a benefit to recreational fishermen by increasing the variety of fish in the stream. In both cases, the economic benefit is the dollar value associated with the increase in beneficial use or potential use of the waterbody. The types of economic benefits that might be realized will depend on both the characteristics of the polluting entity and characteristics of the affected community, and should be considered on a case by case basis.

to which benefits can be considered in the economic impact analysis. This determination should be coordinated with the EPA Regional Office. A more detailed description of the types of benefits that might be considered is given in Appendix C. This appendix is not intended to provide in-depth guidance on how to estimate economic benefits; rather, it is intended to give States an idea of the types of benefits that might be relevant in a given situation.

between the intrinsic value of the existence of the resource and its value in use by the human population. Use values are further subdivided into direct or indirect uses. Other valuation concepts arise from the uncertainty surrounding future uses and availability of the resource. A classification of these valuation concepts, along with examples, is presented in Table C-1 below.

C.1 Use Benefits

resource and its uses. A waterbody might be used for recreational activities (such as fishing, boating, swimming, hunting, bird watching), for commercial purposes (such as industrial water supply, irrigation, municipal drinking water, and fish harvesting), or for both. Where recreational activities are created or enhanced due to water quality improvements, the public will benefit in the form of increased recreational opportunities. Similarly, the cost of treating irrigation and drinking water to down stream users could be reduced if pollutant discharges were reduced or eliminated in a particular stretch of river.

non-consumptive uses in that the former excludes other uses of the same resource while the latter does not. For example, water is consumed when it is diverted from a waterbody for irrigation purposes. With non-consumptive uses, however, the resource base remains in the same state before and after use (e.g., swimming). Human health benefits associated with cleaner water could be consumptive (reduced illness from eating finfish or shellfish) or non-consumptive (reduced exposure to infectious diseases while recreating).

its use). For example, commercial fisheries have a market value reflected by the financial value of landings of a particular species. By contrast, no market exists to describe the value individuals receive from swimming. Where market values are available, they should be used to estimate benefits. In the case of water supply, there may or may not be a market for clean water. Some water users may be required to pay for that use as in the case of a farmer paying a regional water board to divert water for irrigation purposes. This will be particularly true in the arid west. By contrast, a manufacturing facility using water for cooling or process water may not pay anything for the right to pump and use water from an adjacent river. For resources with no market value, a number of estimation techniques including the travel cost, estimation from similar markets, and contingent valuation methods have been developed.

While they are conceptually distinct attributes, consumptive use is frequently associated with markets and non-consumptive use is frequently associated with non-market situations. Some resources that are considered market resources, however, may be used non-consumptively. The converse is also true. As an example of the first, a fee may be charged (other than parking) to gain entrance to a state park, however, while a swimmer's use of a lake in the park is not consuming any part of the lake.

indirect use. Examples would be a fishing equipment manufacturer's dependence on healthy fish stocks to induce demand for its products or the dependence of property values on the pristine condition of an adjacent water body. Indirect use is also characterized by the scenic views and water enhanced recreational opportunities (camping, picnicking, birdwatching) associated with the quality of water in a water body. Indirect use benefits such as enhanced property values can be estimated using the hedonic price technique. Care should be taken, however, to not double-count benefits. If property values reflect the proximity to and thus use of water, then the value of the use should not be included separately.

C.2 Intrinsic Benefits

the resource. Intrinsic benefits are represented by the sum of existence and option values. Existence value indicates an individual's (and society's) willingness to pay to maintain an ecological resource such as clean water for its own sake, regardless of any perceived or potential opportunity for that individual to use the water body now or in the future. Contributions of money to save endangered species such as the snail darter demonstrate a willingness to pay for the existence of an environmental amenity despite the fact that the contributors may never use it or even experience it directly.

routinely pay to store or transport something they are not sure they will use in the future because they recognize it would be more costly to recreate the item than to preserve it. In an ecological sense, pristine habitats and wildlife refuges are often preserved under the assumption that plant or animal species which may yield pharmaceutical, genetic, or ecosystem benefits are yet to be discovered. Option value takes on particular importance when proposed development or environmental perturbations are largely irreversible or pollutants are persistent. Intrinsic benefits are difficult to measure due to the level of uncertainty associated with these benefits. The most common approach to estimating intrinsic benefits, however, is the contingent valuation method, which cannot be described in detail within this short overview.

C.3 Summary: Summarize the Water Quality Benefits of this pollution control project

Total valuation of clean water benefits includes all use and existence values as well as option value. The proper framework for estimating the economic benefits associated with clean water consists of 1) determining when damage first occurs or would occur; 2) identifying and quantifying the potential physical/biological damages relative to an appropriate baseline; 3) identifying all affected individuals both due to potential loss of direct or indirect services or uses, and to potential losses attributable to existence values (may include projections for growth in participation rates); 4) estimating the value affected individuals place on clean water prior to potential degradation; and 5) determining the time horizon over which the waterbody would be degraded or restored to some maximum reduced state of service (if ever), and appropriately discounting the stream of potential lost services. If evaluating an improvement in water quality, the procedures are the same except that benefits gained are measured.

Table C-1: Categories of Use Benefits

Direct	Indirect	Intrinsic
Consumptive:	Fishing Equipment Manufacturer	Option Value (access to resource in future)
Market Benefits	Property Values	Existence Value (knowledge that services of resource exist)
Industrial Water Supply Agricultural Water Supply Municipal Water Supply	Aesthetics (scenic views, water enhanced recreation)	

Commercial Fishing

Non-Market Benefits

Recreational Fishing
Hunting
Industrial Water Supply
Agricultural Water Supply
Municipal Water Supply

Non-Consumptive:

Swimming
Boating
Human Health

water. For example, in a rural community where the
would reduce the cost of treating irrigation water to
tream that otherwise could be used for recreational
creational fishermen by increasing the variety of fish
beneficial use or potential use of the waterbody. The
ng entity and characteristics of the affected

e the extent to which benefits can be considered in
e. A more detailed description of the types of
depth guidance on how to estimate economic
a given situation.

r indirect uses. Other valuation concepts arise from the
concepts, along with examples, is presented in Table C-

of the resource and its uses. A waterbody might be used
purposes (such as industrial water supply, irrigation,
enhanced due to water quality improvements, the public
and drinking water to down stream users could be

when it is diverted from a waterbody for irrigation
and after use (e.g., swimming). Human health benefits
r non-consumptive (reduced exposure to infectious

s case clean water) can be considered market or non-
ercial fisheries have a market value reflected by the
individuals receive from swimming. Where market values
not be a market for clean water. Some water users may
r for irrigation purposes. This will be particularly true in the
anything for the right to pump and use water from an
ravel cost, estimation from similar markets, and contingent

and non-consumptive use is frequently associated with
non-consumptively. The converse is also true. As an
ver, while a swimmer's use of a lake in the park is not

fit from indirect use. Examples would be a fishing
e dependence of property values on the pristine condition
recreational opportunities (camping, picnicking,
nced property values can be estimated using the hedonic
ct the proximity to and thus use of water, then the value of

rent use of the resource. Intrinsic benefits are represented
illingness to pay to maintain an ecological resource such
l to use the water body now or in the future. Contributions
he existence of an environmental amenity despite the fact

water in known or as yet unknown ways. In a sense it is a
ing they are not sure they will use in the future because
, pristine habitats and wildlife refuges are often preserved
stem benefits are yet to be discovered. Option value takes
versible or pollutants are persistent. Intrinsic benefits are
approach to estimating intrinsic benefits, however, is the

---

value. The proper framework for estimating the
occurs or would occur; 2) identifying and
entifying all affected individuals both due to
tence values (may include projections for
r prior to potential degradation; and 5)
he maximum reduced state of service (if ever),
ent in water quality, the procedures are the

Non-Degredation for a Public Entity

allows the public to make decisions about important environmental actions. Where the State intends to provide for development, it may decide that some lowering of water quality in "high-quality waters" is necessary to accommodate important economic or social development. Any such reduction in water quality, however, must protect existing uses fully and must satisfy the requirements for intergovernmental coordination and public participation.

To determine if water quality can be lowered for a new public development, the same tests are used as in this worksheet. However, the questions asked are slightly different.

Questions:
(1) Will the pollution controls required to maintain the high quality water interfere substantially with the proposed public development in a way that compromises the community's current financial and socioeconomic well-being ? (Analogous to secondary test for Substantial Impacts)
(2) Is the proposed public development important economically and socially to the study area? (Analagous to Wide

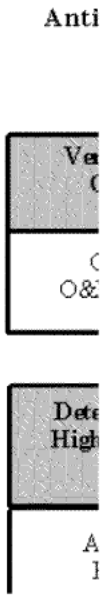
The tests used to demonstrate 'interference' and 'importance' are the same as those used to demonstrate substantial and widespread impacts. The difference is, however, that an antidegradation review considers situations that would improve the current economic condition as opposed to hurting them.

If the answer is no to either of questions 1 or 2 above, then the analysis is over---no degradation of water quality is by the pollution controls necessary to prevent degradation *is* an *important* economic and social development.

To answer question (1), please complete Worksheets A through F, and the Substantial Impacts Matrix.
To answer question (2), please complete the DEQ Widespread Criteria worksheet.
Complete the summary information on tab following this one entitled 'Non_deg Summary'.

An antidegradation review must determine that the lowering of water quality is necessary in order to accommodate social development in the area in which the waters are located.

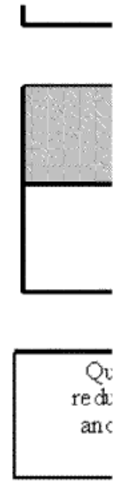
While the terminology is different, the tests to determine substantial and widespread economic impacts (used when removing a use or granting a variance) are basically the same as those used to determine if there might be interference with an important social and economic development (antidegradation). As such, antidegradation analysis is the mirror image of the analyses described in Chapters 2, 3 and 4 of the EPA Guidance. Variences and downgrades
refer to situations where additional treatment needed to meet standards may result in worsening economic conditions; while antidegradation refers to situations where lowering water quality may result in improved social and economic conditions.



When performing an antidegradation review, the first question is whether the pollution controls needed to maintain the high-quality water will interfere with the proposed development. If not, then the lowering of water quality is not warranted. If, on the other hand, the pollution controls will interfere with development, then the review must show that the development would be an important economic and social one. These two steps rely on the same tests as the determination of substantial and widespread impacts.

The analytic approach presented here can be used for a variety of public-sector and private sector entities, including POTWs, commercial, industrial, residential and recreational land

uses, and for point and nonpoint sources of pollution.



policy that allows the public to make decisions about
ide that some lowering of water quality in "high-quality
ction in water quality, however, must protect existing
ipation.

sed as in this worksheet. However, the questions

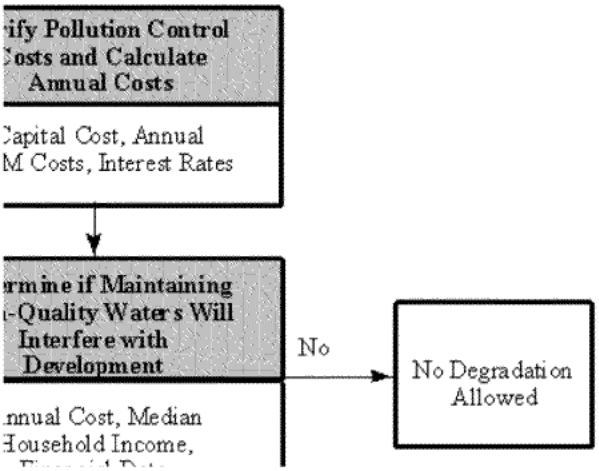
n the proposed public development in a way that
econdary test for Substantial Impacts)
spread Impacts Test)

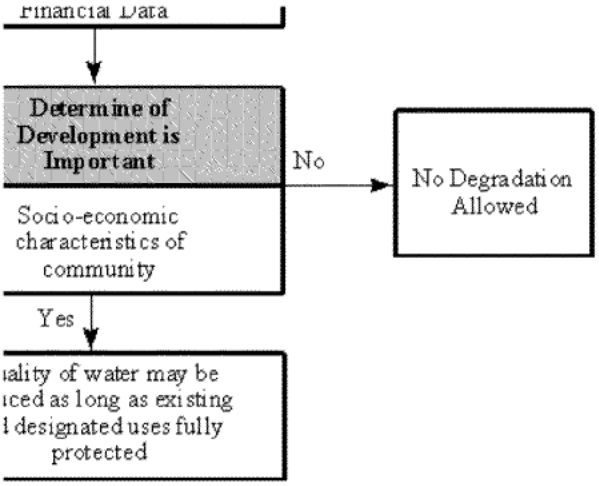
necessary.
rfered with by the pollution controls necessary to

Matrix.

important economic or

Figure 5-1:
degradation Review




Financial Data
Determine of Development is Important
No
No Degradation Allowed
Socio-economic characteristics of community
Yes
ıality of water may be
ıced as long as existing
l designated uses fully
protected

the results that you reach for each step for your analysis. This is help to give a simple overview of what you found out.

OVERALL STEPS SUMMARY

Step 1: Verify Project Costs and Calculate the Annual Cost of the Pollution control project

Step 2: Calculate Total Annualized Pollution Control Costs Per Household

Step 3: Calculate and Evaluate the Municipal Preliminary Screener Score-- identifies only entities that can pay for sure

Step 4: Apply the Secondary Test - Will the pollution controls needed to maintain the high-quality water interfere with the proposed public development in a way that compromises the community's current financial and socioeconomic well-being

Step 5: Assess where the community falls in The Substantial Impacts Matrix - This matrix evaluates whether or not communities are expected to incur **substantial** economic impacts due to maintaining high quality waters (e.g. interference with public project). If the applicant cannot demonstrate substantial impacts, then they will be required to meet existing water quality standards.

Step 6: If impacts are expected to be substantial on the community, then the applicant goes on to determine whether they are also expected to be 'important' (Go to "DEQ Widespread Criteria" tab to answer this question). For Non-deg, the question is: Is the proposed public development important economically and socially to the study area? (Analagous to Widespread Impacts Test)

Step 7: Present the Final Conclusion

marize the results that you reach for
und out.